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species should become well established it will prove especially harmful; vigorous measures should, therefore, be taken to prevent its spreading.

SAMUEL HENSHAW.

CAMBRIDGE, May 17, 1897.

SCIENTIFIC LITERATURE.

Das Tierreich. Eine Zusammenstellung und Kennzeichnung der rezenten Tierformen. Herausgegeben von der Deutschen Zoologischen Gesellschaft. Generalredakteur: FRANZ EILHARD SCHULZE. Berlin, R. Friedländer und Sohn. 1897.

It is about a hundred years since the last editions of Linnæi *Systema Naturæ* appeared, pretending to give a systematic descriptive enumeration of all natural history objects known at that time. Those were days when one man could undertake such a work including all the known animals, plants and minerals. In most cases these editions were baseless and uncritical compilations, but, nevertheless, their influence was so stimulating that before the end of the eighteenth century the task of keeping these descriptive lists up became impossible. The three kingdoms separated first, but even the animal kingdom alone got beyond the control of the zoologists, and no descriptive list of all the animals was undertaken till our days, as Cuvier's *Regne Animal* did not pretend to take cognizance of any but the more common or remarkable forms.

The only publications of recent years, however, which, if kept up, would finally present in one series descriptions of all known animals are the catalogues of the specimens in the British Museum, but on the scale upon which these volumes are planned it will take ages before the task can be completed.

Recognizing this, the German Zoological Society has boldly stepped to the front and not only planned, but actually begun, a publication which intends to embrace systematic diagnoses of all living animals under the title '*Das Tierreich.*' The plan of this gigantic undertaking is as follows:

The various groups of animals are to be worked up by specialists, a list of sixty-four collaborators having already been published.

Their work is to be supervised by a number of division editors, twenty-one of whom are named. At the head of the whole, as editor-in-chief, is Dr. F. E. Schulze, of Berlin, assisted by an editorial committee consisting of the President of the German Zoological Society and Dr. K. Möbius, in Berlin.

In order to obtain uniformity, certain rules have been adopted: thus the nomenclature is to follow the canons of the German Zoological Society; the color designations are to be according to Saccardo's *Chromotaxia*, the abbreviations are to be uniform, etc.; subspecies are to be recognized; a short diagnosis of each form is to be given, accompanied by a list of all synonyms since 1758, as well as references to the most important literature and a brief statement of the geographical distribution; systematic synopsis of groups and keys to facilitate identifications are to be a special feature, and diagrams and figures in the text will illustrate the more difficult points. Every group is to be published as soon as finished, irrespective of its position in the system and as a separate whole, with title and index. Upon the completion of each division, table of contents and index follow, as well as a general table and index when the whole work is finished. The various parts are to be sold separately. The work will be published in the German language; exceptionally, however, also in English, French or Latin.

It will be seen from the above that the German Zoological Society has in view a most ambitious and colossal undertaking, which, if it is ever brought to conclusion, must prove of inestimable value to zoological science. The plan seems well considered and the names of the contributors thus far secured promise well for the thoroughness of the work to be undertaken. But will it ever be finished? Or rather, will it be finished within such a period that the beginning will not be completely antiquated before the editor-in-chief writes *finis* on the last page of the last part? We all remember the fate of another German undertaking of vastly less ambitious dimension, viz.: Brown's '*Thierklassen*,' which, although begun in 1859, is not yet completed, and anxiously ask whether it may not require more than

one generation to finish the 'Tierreich.' The prospectus does not even contain an estimate as to the aggregate number of volumes or signatures the whole may embrace, and the present reviewer has no means of furnishing such an estimate except for a limited branch. The first part, relating to birds, having been issued, it is possible to calculate the size of the portion relating to the class *Aves*, and to assert that, if the same plan is followed throughout, the birds alone will fill 10 large octavo volumes of about 600 pages each. The question then is, How many volumes are the other classes to occupy, and how many the insects alone?

The price cannot be considered high, in view of the character of the work. Regular subscribers who bind themselves to take all the parts published during the first five years will have to pay an average price of Mark 0.70 per signature, or about 18 cents, while the various parts will be sold separately at a rate about one third higher. On the above calculation the birds when concluded would cost about 65 dollars to subscribers and 87 dollars to others.

As stated above, the first part is now published and is before us.* It treats of the goat-suckers and swifts and is the work of Mr. Ernst Hartert, the director of the museum in Tring. If the rest of the work is going to keep up with the standard set by this beginning there can be no doubt that the undertaking will be a scientific success. But then, Mr. Hartert is not only exceptionally fitted for this work, but he has also had exceptional opportunities. Brought up with German thoroughness, he was transplanted to England, where, unfettered by national prejudices, he was free to select and develop the best sides of English methods. Five years ago he monographed these very families of birds for the catalogue of the British Museum,

with the unrivaled material of that institution before him. He has thus had an opportunity to study specimens of nearly all the species he treats of, and his work thus partakes but little of the character of a compilation. The first part of the *Tierreich* is a condensed review, in German, of that monograph brought down to date. On the whole, the changes are few, showing how well the work was done from the start. 21 species and subspecies are recognized as having been added since 1892, while it has only been necessary to add or reinstate five species and subspecies described previous to 1892. On the other hand, only two or three species then recognized as such have now been reduced to subspecies. Two additional genera are recognized, viz.: *Cosmetornis*, reinstated, and *Nannochordeiles*, established in 1896. The changes in nomenclature are not many. The author has accounted for most of the changes in a separate paper published in the *Ibis* for 1896, to which those wishing further detailed information are referred. One important change in nomenclature, however, has not been noted there, as it was brought about by Dr. Reichenow only a short time ago. The latter found that Pallas has not established the genus *Apus* for *Monoculus apus*, Lin., as previously supposed, but that Scopoli, who proposed *Apus* for the Swift in 1777, had on a previous page established the genus *Apos* for the *Monoculus*. Of course, the latter is only a lapsus in transliterating *απος* and is, in every sense of the word, a synonym of *Apus*, which must, therefore, be considered preoccupied. Reichenow considers the case parallel to that of *Picus* and *Pica*, names allowable under the codes of nomenclature, but there is absolutely no similarity between the cases. The latter generic appellations are distinct and separate Latin classical names for widely different birds, though the philological root of the two words is probably the same. But in *Apos* and *Apus* it is the same word, by some lapsus, or another, mutilated in the case of *Apos*. Were we to accept Reichenow's ruling we should have one species *Apos apus*, the *monoculus*, and another *Apus apus*, the bird, which would nearly nullify the idea of zoological nomenclature, viz.: to have a different name for each different species.

* Das Tierreich. Eine Zusammenstellung und Kennzeichnung der rezenten Tierformen. Herausgegeben von der Deutschen Zoologischen Gesellschaft. Generalredakteur: Franz Eilhard Schulze.—1. Lieferung. Aves. Redakteur: A. Reichenow.—Podar-gidæ, Caprimulgidæ und Macropterygidæ bearbeitet von Ernst Hartert, Direktor des Zoologischen Museums in Tring (England). Mit 16 Abbildungen im Texte.—Berlin. Verlag von R. Friedländer und Sohn. 1897.. 8vo. viii + 98 pp.

While we must thus congratulate the German Zoological Society upon the eminently satisfactory beginning of its enormous enterprise, and the zoological world at large upon the prospect of the assistance and stimulus which such a work must necessarily afford, we cannot forbear expressing the reservation that the promoters of the task when expecting that 'Das Tierreich' may become the foundation and starting point of all future systematic research ('Grundlage und Ausgangspunkt aller künftigen Systematik'). A work to become, in our days, the foundation and starting point of future systematic research must break new ground, open up new views and utilize new material to a much greater extent than it is possible in a general work of the scope of 'Das Tierreich,' with its necessarily excessive condensation and also necessarily uneven authority. No matter how prominent the monographers may be, it is conceivable that the work of many may fail to receive the universal acceptance which is essential to the fulfilment of the Society's fond hope. The time is not ripe yet for a new starting point. We are still in the midst of a period of development and upheaval. The natural relationships of animals are, to a great extent, obscure as yet, and the systematic arrangement in the work is bound to be greatly artificial in many groups at least. It is even to be feared that the very conciseness of the form and the consequent unavoidable preciseness of the statements, coupled with the superficial uniformity of the arrangement, may tempt the habitual generalizers, who are deficient in the special knowledge which 'Das Tierreich' is destined to be an expression for, into a belief that zoological science has reached a well-balanced uniformity which might make it safe to use the work as an undisputed authority in all branches upon which to build daring and glittering generalizations. For the working specialist, it is safe to say, no general work, however, well executed, will even supersede the *Systema Naturæ* of Linnæus as a starting point.

LEONHARD STEJNEGER.

A Study in Insect Parasitism: A Consideration of the Parasites of the White-marked Tussock Moth, with an account of their habits and interrelations,

and with descriptions of new species. BY L. O. HOWARD. U. S. Department of Agriculture, Division of Entomology, Technical Series (Bulletin) No. 5. [April] 1897.

One of the first insects which met the writer's eye on landing in New York in 1887 was the larva of the white-marked tussock moth (*Orgyia Hemerocampa leucostigma*). It is a beautiful creature, but destructive to the shade trees. It exhibits 'warning colors,' and is not eaten by the sparrows; so there is no telling how abundant it might become but for parasites and diseases.

Dr. L. O. Howard undertook a few years ago to study the life history and parasites of this insect, especially as observed in the City of Washington. One might have supposed that at this late date there was nothing new to be learned about so common a creature, but Dr. Howard knew better, and the present bulletin exhibits part of the new facts ascertained. It is not necessary to recount these facts, as the bulletin itself can be obtained without difficulty, but I should like to emphasize two or three points.

In the first place, we see that most admirable work may yet be done even in the very midst of our great cities, and that even new species may be obtained in tolerable abundance. Dr. Howard, in the present bulletin, records thirty-five parasites and hyperparasites of the *Orgyia*, of which no less than nine are described as new, all the new ones being from the District of Columbia. So even our business men, who have but a spare half-hour or twenty minutes at noon, can, if they are so inclined, gather a lot of *Orgyia* cocoons and breed parasites, with a fair chance of turning up actual novelties! Here, indeed, is an exciting and interesting pastime for young clerks and such persons whose city life is at present rather dull.

Secondly, we observe that when the various factors bearing upon the life of an insect are considered together, the interest of the subject is enormously increased. It is unfortunate that at least nine-tenths of the current literature of entomology relates either to dead specimens removed from their natural environment, or when referring to living insects takes an extremely narrow view of the subject. It results from this that one of the most fascinating